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Technical Presentations Skills for Engineers-4 Tools and Techniques

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Technical Presentations

- As engineers we will present our work many times throughout our careers
  - Interviews, reports to management, design reviews etc
- We are often trying to persuade someone to our own way of thinking
- We are often presenting highly technical information
- It is in our best interests to put forward our arguments as clearly and concisely as possible

Basic Layout

- A typical presentation will comprise
  - Introduction (& outline of what is to come?)
- Problem statement
- Main body
  - Methodologies, theory development
  - Results and discussion
- Conclusions and recommendations
- A good presentation:
- "Flows" – it defines a problem or an argument and then systematically addresses it
  - Not necessarily chronologically……..
- Speaks in terms appropriate to the audience
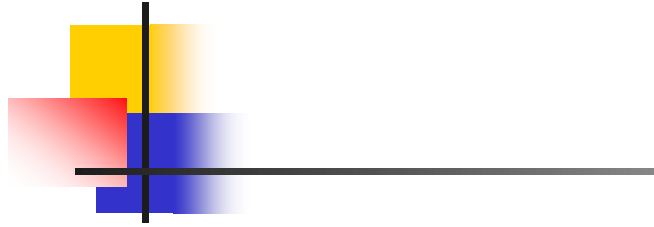
Using Powerpoint / Graphic Aids

- The way you use Powerpoint can make or break your presentation
- It is an aid to you, not the whole story in itself
- Following are a few common errors in Powerpoint usage

www.smh.com.au/ffximage/2007/04/05/powerpoint...
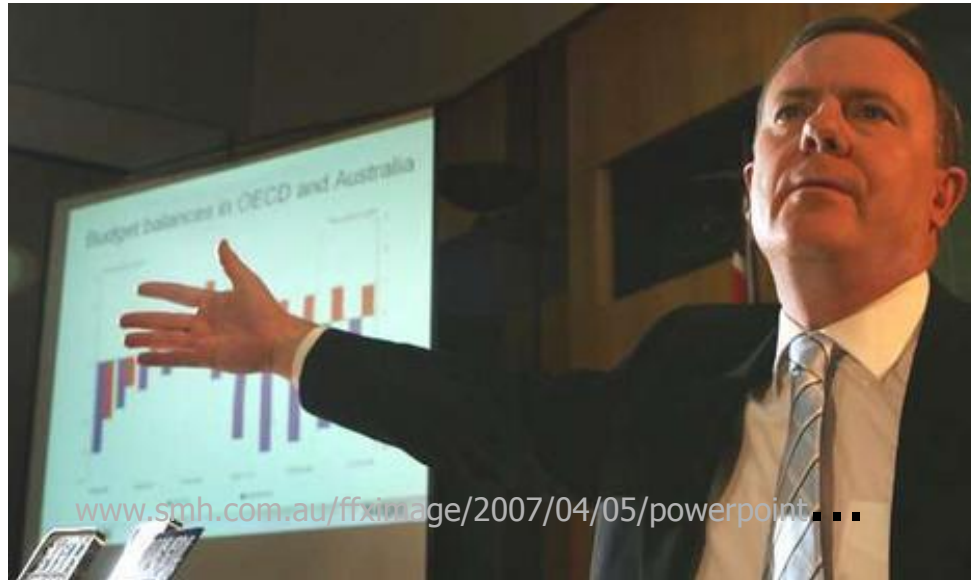
The Three Most Important Elements of a Technical Presentation

- Organization

- Visual Aids

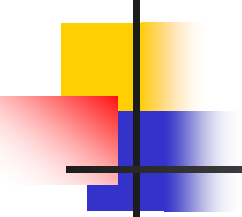- Delivery and Style: Your Presence and Preparation

Before You Present…

Identify the Purpose

- What is your general purpose?

- What is your specific purpose?

- What is your thesis statement?

- What do you want your audience to learn?

- What action should be taken next?

Perform an Audience Analysis

- Identify who your audience will be

- Identify your objectives for the audience

- Identify their understanding of the subject

- Determine how willing they will be to accept your ideas

Organization

Organization: Introduction

- Identify who you are/establish your "presence"
  - Why should they listen to YOU? Express your qualifications, passions, become a bit "human" to the audience

- Earn the audience's attention

  - What will they get from listening to you?
  - Why should they listen?

- Give a roadmap: Tell 'em what you're gonna tell 'em

  - Explain where you plan to go, set up the story
  - Explain what the audience can anticipate

Organization: Introduction cont.

- Don't say "Before I begin"

- Don't apologize for being nervous

- Don't read the introduction

- Don't use a dramatic, irrelevant opener

- Don't make the introduction too long

Organization: Body

Create main points to express key ideas and major claims

- Present points as declarative statements

- Reflect points back to thesis

- Keep speech points unified, coherent, and balanced

- Verbalize connections between points

Organization: Transitions

- A word or phrase that signals when a speaker has finished one thought and is moving onto another

  These are the turn signals necessary for changing lanes.

- 2 parts to a transition: Transitions state the idea that the speaker is leaving (the review part) and the idea that the speaker is coming up to (the preview part)

Ex: Now that you know what the TPS report is (review), I will discuss its functions (preview).

Organization: Conclusion

- Purpose: Tell 'em what you told 'em
    - Offers audience a sense of closure
    - Reinforces thesis
- Tips
    - Signal the end verbally and non-verbally
    - Restate the thesis using a strong concluding statement
    - Make conclusions strong and brief

Organization: Conclusion cont.

- Don't drag out the conclusion
- Don't end on a weak or rambling note
- Don't introduce new points
- Don't say "so in conclusion"
- Don't end with "Any Questions?" (if the audience was engaged, then they will have questions)

Visual Aids

Fonts Are Important!

- Use Microsoft sans serif fonts

- Use readable font sizes

- Use appropriate color combinations

40 point Title

28 point Heading

24 point Sub-headings

18 point References and Labels

Avoid using 12 point font or smaller

Preparation - Slides

- Use Images & Graphics
- Minimise text & numbers
- Light text on dark background
- Avoid distracting backgrounds

- Use large sans serif fonts

Helvetica or Arial rather than serif fonts like Times

24 pt is minimum, 32 pt, or even 36 pt is better

Preparation - Slides

ALL CAPITALS IS HARDER TO READ, ALTHOUGH IT MIGHT BE OK FOR THE ODD TITLE

Use Images & Graphics

Minimise text & numbers

Light text on dark background

Avoid distracting backgrounds

Use large sans serif fonts

Mix upper and lower case

Fonts Will Make or Break a Presentation

- Use sans serif fonts

- Use readable font sizes

- Use appropriate color combinations

40 point Title

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Make Sure *You're* Grammar is Correct

- Affect v. Effect
  Affect (verb) influence or change
  Effect (verb) bring about or (noun) result

- Whose v. Who's
  Whose means belonging to whom
  Who's is a contraction of who is

- Your v. You're
  Your is possessive
  You're is a contraction of you are

- Its v. It's
  Its is a pronoun indicating possession
  It's is a contraction of it is

The Abuses of Capital Letters

- Bullet points typically have one capital letter at the beginning

- Just because You think a word is Important does Not mean it should be Capitalized

- ALL CAPITAL LETTERS MAKE IT HARDER FOR YOUR AUDIENCE TO DECIPHER WORDS

The Exclamation Point

Warning!

Don't over use this. Be careful of when and where you use it.

Text

Don't just fill the page with slabs of text. It looks like hard work for the reader, and does little to highlight the key points of your argument. It also has the tendency to drag you into rote reading of your presentation slides, which disengages you from the audience, (and also tends to reduce your voice to a monotone).

Powerpoint defaults to a "dot-point" style which actually suits the intent of the medium – to provide the key points and data that define your argument, and then allow you to entertain the audience with the details of your story.

Avoid Using Too Many Words

- Use Bullet Points

- Use Condensed Sentences
  - No parking structure will be considered if the cost per stall to erect the structure is greater than $11,000.

  - Parking structures will cost less than $11,000

The Infamous Laser Pointer

- Practice with the laser pointer.

- Use sparingly: Only when necessary

Visual Aids Do's and Don'ts

Do's

- Design them large enough

- Design them to be simple

- Deign them to be clear

- Label them

- Use only what you need

Don'ts

- Use too much text

- Use excessive artwork

- Make things look cramped

- Use too many colors

- Overuse caps

Bad Colour Choices

- Your favourite colours may not translate onto a big screen
- Choose colours that contrast well
  - Projectors tend to "wash out" colours
- Beware of "flaring"
  - Reds and oranges on blues, etc
- Often dark backgrounds with white lettering work well

Use high contrast colours for important lines, symbols or text, and lower contrast colours for less important lines, symbols or text. But use a small number of colours

Graphics and Images

- Your choice and layout of graphics can either entertain or just frustrate your audience

http://www.fluent.com/about/news/pr/pr81.htm

- Make sure graphics and images are:
  - Relevant
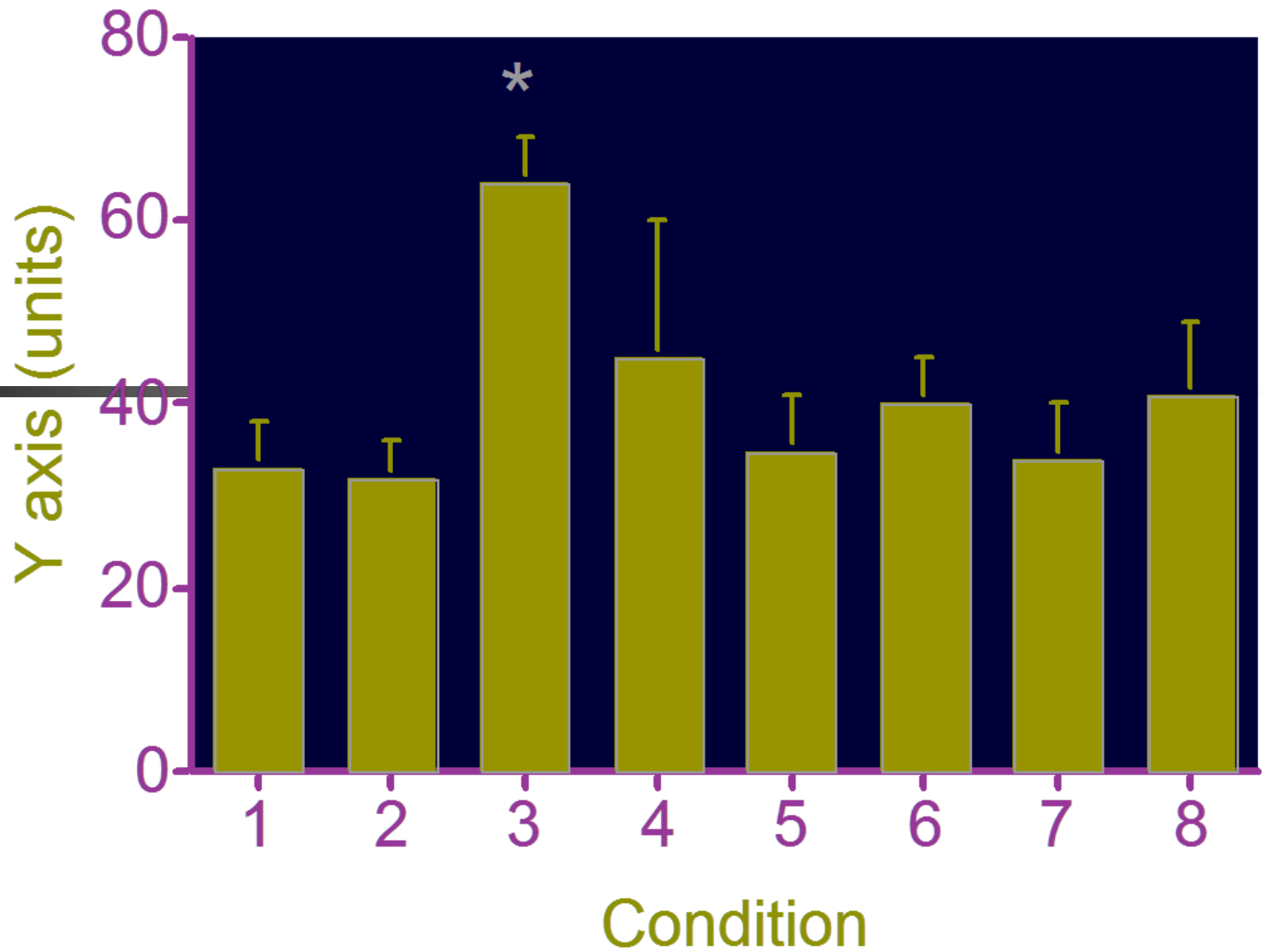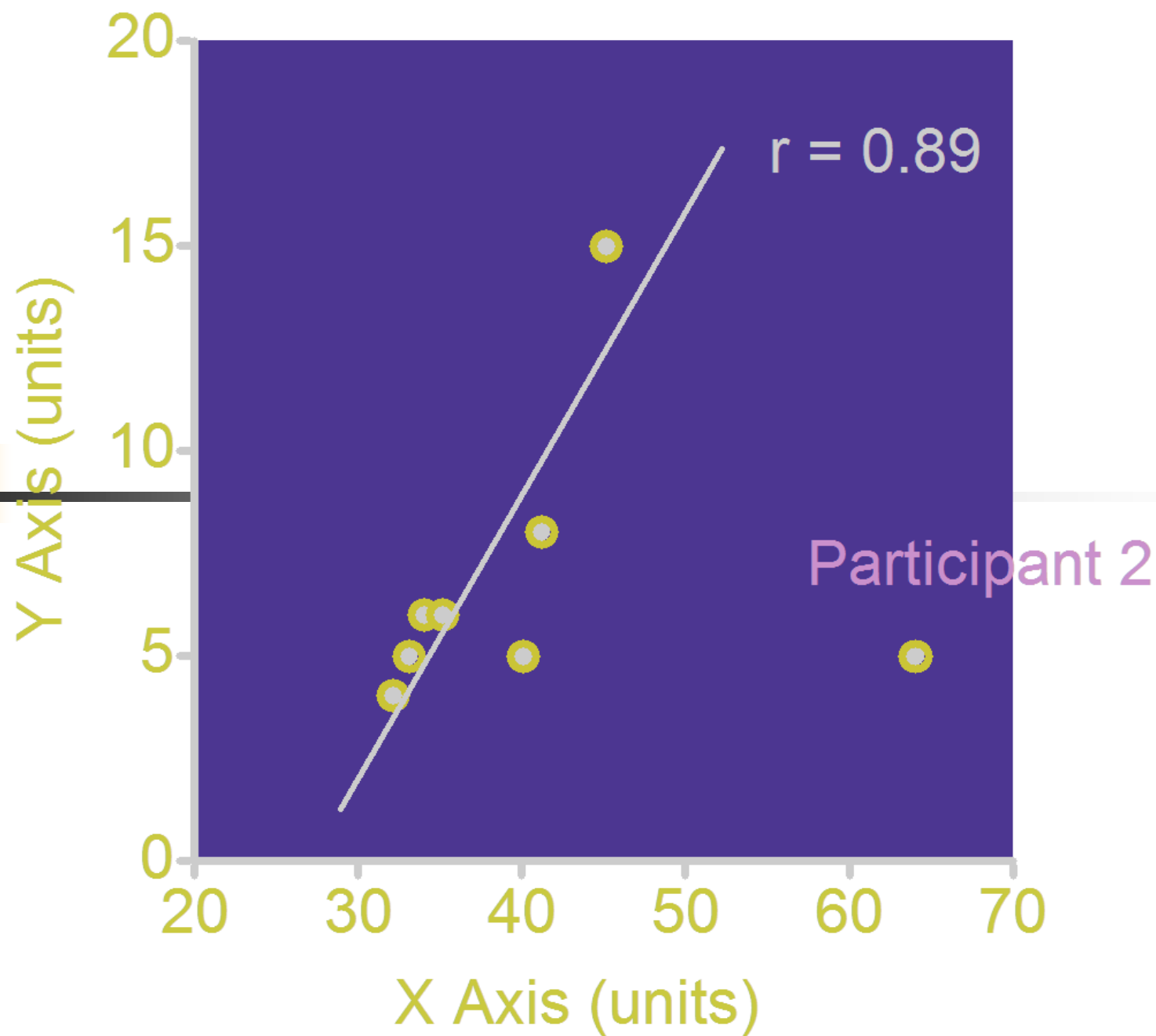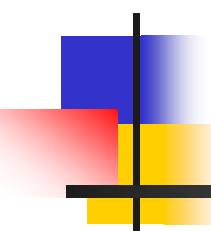 - Easy to read
  - Appropriately sized
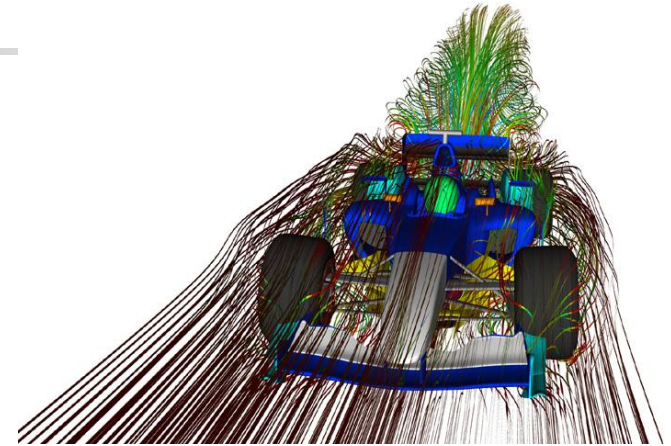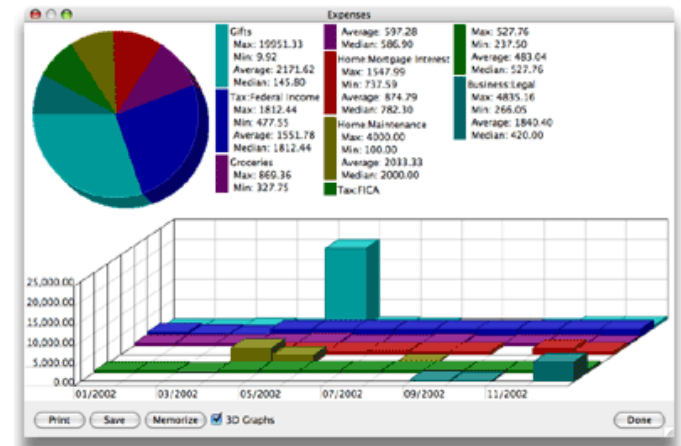
http://moneydance.com/mac_expenses_graph

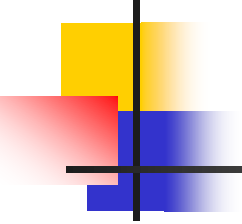# Show means, sd, effect size statistics, but not test statistics

Written text over graphics

- Be very wary of placing text over fancy graphics
- It usually just ends up being really difficult to read
- The graphics should compliment your argument, not overwhelm it

Use Powerpoint's Capabilities

- At the other end of the scale, there is no quicker way to lose your audience than slabs of text on a plain page
- Use the capabilities of the program
- Use them wisely

Referencing Sources

Reference...

Quotes	Figures	Facts
Statistics	Codes	Charts
Graphs	Pictures	

Examples

Figure 1: The cost analysis for the alternatives in the structural teams analysis

Smith (2002). *Engineering Your Future* Cambridge, New York

Delivery

Good Delivery…

- Is clearly audible, fresh, and energetic sounding
- Is a polished version of yourself
- Looks and sounds natural
- Is human, not robotic or like a TV news anchor
- Has controlled and planned body movements
- Is extemporaneous (don't read slides!)
- Is always focused on the goal (speak so your audience will understand)

A Few Words on Practicing

- It is the most important aspect of a presentation... seriously

- It is in practice that you find out if you
  - Make sense
  - Sound knowledgeable
  - Or sound like an idiot

The Best Way to Practice

- Highlight in your notes difficult pronunciations or phrases that need emphasis or a slower rate of speaking
- Practice in a room similar to where you will present
- Imagine the audience to whom you will present
- Always practice out loud
- Plan movement and gestures
- Practice with all of the equipment you will use

Practice 7 to 11Times

- 1st Practice: Use notes and try to get a sense of the rhythm of the speech
- 2nd to 4th practice: Make notes of difficult transitions, phrases, or words
- 5th to 7th practice: Focus on how to maintain freshness and energy without making the speech seemed "canned"
- Practice two more times beyond the point of pain…you'll know it when you get there

Establishing Credibility

- KNOW that you KNOW your stuff

- KNOW that you ARE an expert

- Speak loud enough

- Look at your audience

- Don't assume your audience knows

- Be in control at all times

- Watch for audience's non-verbal feedback and adjust your rate, content, or eye contact for them

Project Issues

- Confidentiality
  - You may be using sensitive material in the course of your project
  - Make sure you check with your industry partners for any confidential material before presentation
  - Also familiarize yourself with Organization policy on confidentiality, as laid out in your Employment agreement/offer
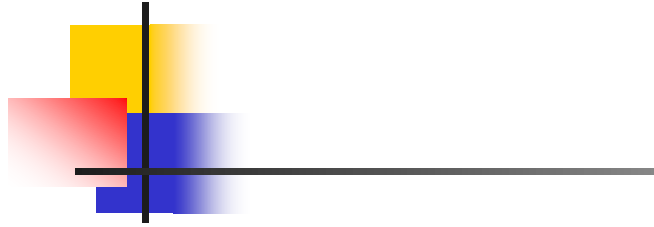
Presentation Day

Presentation Checklist

- Check the room
- Bring your presentation on a reliable disk

- Check the presentation projection

- Decide how loud you must speak

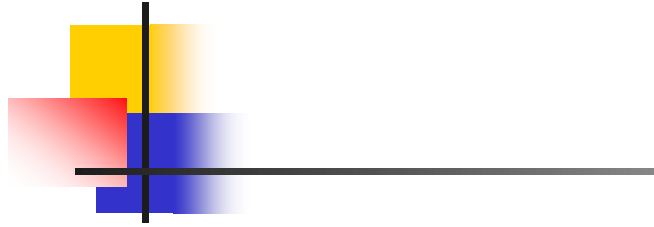- Decide where you and your audience will be located

Dealing with the Nerves!

- Practice dramatically reduces nervousness
- Nervousness is natural. The key is to use the nervous energy to speak loudly and energetically
- Try breathing exercises
- Do a run-through
- Intend on "working the room"
- Tighten up your muscles and relax them while waiting to speak (this releases the adrenalin)

Handling Questions and Answers

- Decide who will answer which types of questions

- Decide when questions should be asked

- Introduce "new voices"

- Use welcoming body language

- Reword the question before answering
- Say "I don't know" if necessary (you can always find the answer later and get back with the person)

Team Presentations

Teamwork Considerations

- Work out all transitions
    - Between sections
    - Between team members

- Practice as a team

- Speak with one voice

- Give the speaking member full attention. If you look distracted it will make your audience suspicious

Team Checklist

- Where will everyone stand/sit?

- What will others do when not speaking?

- Do you know your presentation equipment well?

- Are all your slides consistent?
  - Team logo
  - Numbering
  - Bullet point structure
  - Graphic images

Conclusion

- A presentation is an opportunity for you to show the world what you are capable of
    - The audience is interested in what you have to say
    - You have full creative control of the moment
- **Like most things, the best way to learn is to do**

- **Give it a go, and enjoy yourself!**